

1648

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/407,432

DATE: 02/20/2001
TIME: 15:04:25

Input Set : A:\548581.app
Output Set: N:\CRF3\02202001\I407432.raw

RECEIVED
MAR 01 2001
TECH CENTER 1600/2900

ENTERED

3 <110> APPLICANT: Worman, Howard J.
4 Mamiya, Naoto
6 <120> TITLE OF INVENTION: HCV CORE PROTEIN BINDING AGENTS FOR TREATMENT OF
7 HEPATITIS C VIRUS INFECTION
9 <130> FILE REFERENCE: 0575/54858
11 <140> CURRENT APPLICATION NUMBER: 09/407,432
12 <141> CURRENT FILING DATE: 1999-09-29
14 <160> NUMBER OF SEQ ID NOS: 6
16 <170> SOFTWARE: PatentIn Ver. 2.1
18 <210> SEQ ID NO: 1
19 <211> LENGTH: 666
20 <212> TYPE: PRT
21 <213> ORGANISM: Human
23 <400> SEQUENCE: 1
24 Met Ser His Val Ala Val Glu Asn Ala Leu Gly Leu Asp Gln Gln Phe
25 1 5 10 15
27 Ala Gly Leu Asp Leu Asn Ser Ser Asp Asn Gln Ser Gly Gly Ser Thr
28 20 25 30
30 Ala Ser Lys Gly Arg Tyr Ile Pro Pro His Leu Arg Asn Arg Glu Ala
31 35 40 45
33 Thr Arg Gly Phe Tyr Asp Lys Asp Ser Ser Gly Trp Ser Ser Ser Lys
34 50 55 60
36 Asp Lys Asp Ala Tyr Ser Phe Gly Ser Arg Ser Asp Ser Arg Gly
37 65 70 75 80
39 Lys Ser Ser Phe Phe Ser Asp Arg Gly Ser Gly Ser Arg Gly Arg Phe
40 85 90 95
42 Phe Asp Asp Arg Gly Arg Ser Asp Tyr Asp Gly Ile Gly Ser Arg Gly
43 100 105 110
45 Asp Arg Ser Gly Arg Gly Lys Phe Glu Arg Gly Gly Asn Ser Arg Trp
46 115 120 125
48 Cys Asp Lys Ser Asp Glu Asp Asp Trp Ser Lys Pro Leu Pro Pro Ser
49 130 135 140
51 Glu Arg Leu Glu Gln Glu Leu Phe Ser Gly Gly Asn Thr Gly Ile Asn
52 145 150 155 160
54 Phe Glu Lys Tyr Asp Asp Ile Pro Val Glu Ala Thr Gly Asn Asn Cys
55 165 170 175
57 Pro Pro His Ile Glu Ser Phe Ser Asp Val Val Val Glu Met Gly Glu
58 180 185 190
60 Ile Ile Met Gly Asn Ile Glu Leu Thr Arg Tyr Thr Arg Pro Thr Pro
61 195 200 205
63 Val Gln Lys His Ala Ile Pro Ile Ile Lys Glu Lys Arg Asp Leu Met
64 210 215 220
66 Ala Cys Ala Gln Thr Gly Ser Gly Lys Thr Ala Ala Phe Leu Leu Pro
67 225 230 235 240
69 Ile Leu Ser Gln Ile Tyr Ser Asp Gly Pro Gly Glu Ala Leu Arg Ala
70 245 250 255
72 Met Lys Glu Asn Gly Arg Tyr Gly Arg Arg Lys Gln Tyr Pro Ile Ser

RAW SEQUENCE LISTING

DATE: 02/20/2001

PATENT APPLICATION: US/09/407,432

TIME: 15:04:25

Input Set : A:\548581.app

Output Set: N:\CRF3\02202001\I407432.raw

```

73          260          265          270
75 Leu Val Leu Ala Pro Thr Arg Glu Leu Ala Val Gln Ile Tyr Glu Glu
76          275          280          285
78 Ala Arg Lys Phe Ser Tyr Arg Ser Arg Val Arg Pro Cys Val Val Tyr
79          290          295          300
81 Gly Gly Ala Asp Ile Gly Gln Gln Ile Arg Asp Leu Glu Arg Gly Cys
82 305          310          315          320
84 His Leu Leu Val Ala Thr Pro Gly Arg Leu Val Asp Met Met Glu Arg
85          325          330          335
87 Gly Lys Ile Gly Leu Asp Phe Cys Lys Tyr Leu Val Leu Asp Glu Ala
88          340          345          350
90 Asp Arg Met Leu Asp Met Gly Phe Glu Pro Gln Ile Arg Arg Ile Val
91          355          360          365
93 Glu Gln Asp Thr Met Pro Pro Lys Gly Val Arg His Thr Met Met Phe
94          370          375          380
96 Ser Ala Thr Phe Pro Lys Glu Ile Gln Met Leu Ala Arg Asp Phe Leu
97 385          390          395          400
99 Asp Glu Tyr Ile Phe Leu Ala Val Gly Arg Val Gly Ser Thr Ser Glu
100          405          410          415
102 Asn Ile Thr Gln Lys Val Val Trp Val Glu Glu Ser Asp Lys Arg Ser
103          420          425          430
105 Phe Leu Leu Asp Leu Leu Asn Ala Thr Gly Lys Asp Ser Leu Thr Leu
106          435          440          445
108 Val Phe Val Glu Thr Lys Lys Gly Ala Asp Ser Leu Glu Asp Phe Leu
109          450          455          460
111 Tyr His Glu Gly Tyr Ala Cys Thr Ser Ile His Gly Asp Arg Ser Gln
112 465          470          475          480
114 Arg Asp Arg Glu Glu Ala Leu His Gln Phe Arg Ser Gly Lys Ser Pro
115          485          490          495
117 Ile Leu Val Ala Thr Ala Val Ala Ala Arg Gly Leu Asp Ile Ser Asn
118          500          505          510
120 Val Lys His Val Ile Asn Phe Asp Leu Ser Pro Ser Asp Ile Glu Glu
121          515          520          525
123 Tyr Val His Arg Ile Gly Arg Thr Gly Arg Val Gly Asn Leu Gly Leu
124          530          535          540
126 Ala Thr Ser Phe Phe Asn Glu Arg Asn Ile Asn Ile Thr Lys Asp Leu
127 545          550          555          560
129 Leu Asp Leu Leu Val Glu Ala Lys Gln Glu Val Pro Ser Trp Leu Glu
130          565          570          575
132 Asn Met Ala Tyr Glu His His Tyr Lys Gly Ser Ser Arg Gly Arg Ser
133          580          585          590
135 Lys Ser Ser Arg Phe Ser Gly Gly Phe Gly Ala Arg Asp Tyr Arg Gln
136          595          600          605
138 Ser Ser Gly Ala Ser Ser Ser Ser Phe Ser Ser Ser Arg Ala Ser Ser
139          610          615          620
141 Ser Arg Ser Gly Gly Gly Gly His Gly Ser Ser Arg Gly Phe Gly Gly
142 625          630          635          640
144 Gly Gly Tyr Gly Gly Phe Tyr Asn Ser Asp Gly Tyr Gly Gly Asn Tyr
145          645          650          655

```

RAW SEQUENCE LISTING
 PATENT APPLICATION: US/09/407,432
 DATE: 02/20/2001
 TIME: 15:04:25

Input Set : A:\548581.app
 Output Set: N:\CRF3\02202001\I407432.raw

```

147 Asn Ser Gln Gly Val Asp Trp Trp Gly Asn
148          660          665
151 <210> SEQ ID NO: 2
152 <211> LENGTH: 254
153 <212> TYPE: PRT
154 <213> ORGANISM: Human
156 <400> SEQUENCE: 2
157 Gly Ser Thr Ser Glu Asn Ile Thr Gln Lys Val Val Trp Val Glu Glu
158 1          5          10          15
160 Ser Asp Lys Arg Ser Phe Leu Leu Asp Leu Leu Asn Ala Thr Gly Lys
161          20          25          30
163 Asp Ser Leu Thr Leu Val Phe Val Glu Thr Lys Lys Gly Ala Asp Ser
164          35          40          45
166 Leu Glu Asp Phe Leu Tyr His Glu Gly Tyr Ala Cys Thr Ser Ile His
167          50          55          60
169 Gly Asp Arg Ser Gln Arg Asp Arg Glu Glu Ala Leu His Gln Phe Arg
170 65          70          75          80
172 Ser Gly Lys Ser Pro Ile Leu Val Ala Thr Ala Val Ala Ala Arg Gly
173          85          90          95
175 Leu Asp Ile Ser Asn Val Lys His Val Ile Asn Phe Asp Leu Pro Ser
176          100          105          110
178 Asp Ile Glu Tyr Val His Arg Ile Gly Arg Thr Gly Arg Val Gly
179          115          120          125
181 Asn Leu Gly Leu Ala Thr Ser Phe Phe Asn Glu Arg Asn Ile Asn Ile
182          130          135          140
184 Thr Lys Asp Leu Leu Asp Leu Leu Val Glu Ala Lys Gln Glu Val Pro
185 145          150          155          160
187 Ser Trp Leu Glu Asn Met Ala Tyr Glu His His Tyr Lys Gly Ser Ser
188          165          170          175
190 Arg Gly Arg Ser Lys Ser Ser Arg Phe Ser Gly Gly Phe Gly Ala Arg
191          180          185          190
193 Asp Tyr Arg Gln Ser Ser Gly Ala Ser Ser Ser Ser Phe Ser Ser Ser
194          195          200          205
196 Arg Ala Ser Ser Ser Arg Ser Gly Gly Gly Gly His Gly Ser Ser Arg
197          210          215          220
199 Gly Phe Gly Gly Gly Gly Tyr Gly Gly Phe Tyr Asn Ser Asp Gly Tyr
200 225          230          235          240
202 Gly Gly Asn Tyr Asn Ser Gln Gly Val Asp Trp Trp Gly Asn
203          245          250
206 <210> SEQ ID NO: 3
207 <211> LENGTH: 136
208 <212> TYPE: PRT
209 <213> ORGANISM: Human
211 <400> SEQUENCE: 3
212 Val Gly Ser Thr Ser Glu Asn Ile Thr Gln Lys Val Val Trp Val Glu
213 1          5          10          15
215 Glu Ser Asp Lys Arg Ser Phe Leu Leu Asp Leu Leu Asn Ala Thr Gly
216          20          25          30
218 Lys Asp Ser Leu Thr Leu Val Phe Val Glu Thr Lys Lys Gly Ala Asp

```

RAW SEQUENCE LISTING

DATE: 02/20/2001

PATENT APPLICATION: US/09/407,432

TIME: 15:04:25

Input Set : A:\548581.app

Output Set: N:\CRF3\02202001\I407432.raw

```

219          35          40          45
221 Ser Leu Glu Asp Phe Leu Tyr His Glu Gly Tyr Ala Cys Thr Ser Ile
222          50          55          60
224 His Gly Asp Arg Ser Gln Arg Asp Arg Glu Glu Ala Leu His Gln Phe
225 65          70          75          80
227 Arg Ser Gly Lys Ser Pro Ile Leu Val Ala Thr Ala Val Val Ala Ala
228          85          90          95
230 Arg Gly Leu Asp Ile Ser Asn Val Lys His Val Ile Asn Phe Asp Leu
231          100          105          110
233 Pro Ser Asp Ile Glu Glu Tyr Val His Arg Ile Gly Arg Thr Gly Arg
234          115          120          125
236 Val Gly Asn Leu Gly Leu Ala Thr
237          130          135
240 <210> SEQ ID NO: 4
241 <211> LENGTH: 792
242 <212> TYPE: DNA
243 <213> ORGANISM: Human
245 <220> FEATURE:
246 <221> NAME/KEY: CDS
247 <222> LOCATION: (1)..(765)
249 <400> SEQUENCE: 4
250 atg gat gat cga gag gat ctg gtg tac cag gcg aag ctg gcc gag cag 48
251 Met Asp Asp Arg Glu Asp Leu Val Tyr Gln Ala Lys Leu Ala Glu Gln
252 1          5          10          15
254 gct gag cga tac gac gaa atg gtg gag tca atg aag aaa gta gca ggg 96
255 Ala Glu Arg Tyr Asp Glu Met Val Glu Ser Met Lys Lys Val Ala Gly
256          20          25          30
258 atg gat gtg gag ctg aca gtt gaa gaa aga aac ctc cta tct gtt gca 144
259 Met Asp Val Glu Leu Thr Val Glu Arg Asn Leu Leu Ser Val Ala
260          35          40          45
262 tat aag aat gtg att gga gct aga aga gcc tcc tgg aga ata atc agc 192
263 Tyr Lys Asn Val Ile Gly Ala Arg Arg Ala Ser Trp Arg Ile Ile Ser
264          50          55          60
266 agc att gaa cag aaa gaa gaa aac aag gga gga gaa gac aag cta aaa 240
267 Ser Ile Glu Gln Lys Glu Glu Asn Lys Gly Gly Glu Asp Lys Leu Lys
268 65          70          75          80
270 atg att cgg gaa tat cgg caa atg gtt gag act gag cta aag tta atc 288
271 Met Ile Arg Glu Tyr Arg Gln Met Val Glu Thr Glu Leu Lys Leu Ile
272          85          90          95
274 tgt tgt gac att ctg gat gta ctg gac aaa cac ctc att cca gca gct 336
275 Cys Cys Asp Ile Leu Asp Val Leu Asp Lys His Leu Ile Pro Ala Ala
276          100          105          110
278 aac act ggc gag tcc aag gtt ttc tat tat aaa atg aaa ggg gac tac 384
279 Asn Thr Gly Glu Ser Lys Val Phe Tyr Tyr Lys Met Lys Gly Asp Tyr
280          115          120          125
282 cac agg tat ctg gca gaa ttt gcc aca gga aac gac agg aag gag gct 432
283 His Arg Tyr Leu Ala Glu Phe Ala Thr Gly Asn Asp Arg Lys Glu Ala
284          130          135          140
286 gcg gag aac agc cta gtg gct tat aaa gct gct agt gat att gca atg 480

```

RAW SEQUENCE LISTING

DATE: 02/20/2001

PATENT APPLICATION: US/09/407,432

TIME: 15:04:25

Input Set : A:\548581.app

Output Set: N:\CRF3\02202001\I407432.raw

```

287 Ala Glu Asn Ser Leu Val Ala Tyr Lys Ala Ala Ser Asp Ile Ala Met
288 145 150 155 160
290 aca gaa ctt cca cca acg cat cct att cgc tta ggt ctt gct ctc aat 528
291 Thr Glu Leu Pro Pro Thr His Pro Ile Arg Leu Gly Leu Ala Leu Asn
292 165 170 175
294 ttt tcc gta ttc tac tac gaa att ctt aat tcc cct gac cgt gcc tgc 576
295 Phe Ser Val Phe Tyr Tyr Glu Ile Leu Asn Ser Pro Asp Arg Ala Cys
296 180 185 190
298 agg ttg gca aaa gca gct ttt gat gat gca att gca gaa ctg gat acg 624
299 Arg Leu Ala Lys Ala Ala Phe Asp Asp Ala Ile Ala Glu Leu Asp Thr
300 195 200 205
302 ctg agt gaa gaa agc tat aag gac tct aca ctt atc atg cag ttg tta 672
303 Leu Ser Glu Glu Ser Tyr Lys Asp Ser Thr Leu Ile Met Gln Leu Leu
304 210 215 220
306 cgt gat aat ctg aca cta tgg act tca gac atg cag ggt gac ggt gaa 720
307 Arg Asp Asn Leu Thr Leu Trp Thr Ser Asp Met Gln Gly Asp Gly Glu
308 225 230 235 240
310 gag cag aat aaa gaa gcg ctg cag gac gtg gaa gac gaa aat cag 765
311 Glu Gln Asn Lys Glu Ala Leu Gln Asp Val Glu Asp Glu Asn Gln
312 245 250 255
314 tgagacataa gccacaaga gaaacca 792
317 <210> SEQ ID NO: 5
318 <211> LENGTH: 255
319 <212> TYPE: PRT
320 <213> ORGANISM: Human
322 <400> SEQUENCE: 5
323 Met Asp Asp Arg Glu Asp Leu Val Tyr Gln Ala Lys Leu Ala Glu Gln
324 1 5 10 15
326 Ala Glu Arg Tyr Asp Glu Met Val Glu Ser Met Lys Lys Val Ala Gly
327 20 25 30
329 Met Asp Val Glu Leu Thr Val Glu Glu Arg Asn Leu Leu Ser Val Ala
330 35 40 45
332 Tyr Lys Asn Val Ile Gly Ala Arg Arg Ala Ser Trp Arg Ile Ile Ser
333 50 55 60
335 Ser Ile Glu Gln Lys Glu Asn Lys Gly Gly Glu Asp Lys Leu Lys
336 65 70 75 80
338 Met Ile Arg Glu Tyr Arg Gln Met Val Glu Thr Glu Leu Lys Leu Ile
339 85 90 95
341 Cys Cys Asp Ile Leu Asp Val Leu Asp Lys His Leu Ile Pro Ala Ala
342 100 105 110
344 Asn Thr Gly Glu Ser Lys Val Phe Tyr Tyr Lys Met Lys Gly Asp Tyr
345 115 120 125
347 His Arg Tyr Leu Ala Glu Phe Ala Thr Gly Asn Asp Arg Lys Glu Ala
348 130 135 140
350 Ala Glu Asn Ser Leu Val Ala Tyr Lys Ala Ala Ser Asp Ile Ala Met
351 145 150 155 160
353 Thr Glu Leu Pro Pro Thr His Pro Ile Arg Leu Gly Leu Ala Leu Asn
354 165 170 175
356 Phe Ser Val Phe Tyr Glu Ile Leu Asn Ser Pro Asp Arg Ala Cys

```

VERIFICATION SUMMARY
PATENT APPLICATION: US/09/407,432
DATE: 02/20/2001
TIME: 15:04:26
Input Set : A:\548581.app
Output Set: N:\CRF3\02202001\I407432.raw